CONTENTS

TISSUE AND CELL 1991 VOLUME 23 NUMBER 6

SOJI, T., NISHIZONO, H., YASHIRO, T. and HERBERT, D. C. Cytochemistry of Ca^{++}-dependent adenosine triphosphatase (Ca-ATPase) in rat anterior pituitary cells 1
ZANGER, K., DANNHORN, D. R., SEITZ, K. A. and PETERS, W. Nephrocytes of harvestmen, *Leiobunum limbatum* and *L. rotundum* 7
TORROBA, M., BARRUTIA, M. G. and ZAPATA, A. G. Fine structure and histochemistry of the ampullary organ of the urodele amphibian *Pleurodeles* 17
CULLEN, C. F. and MILNER, M. J. Parameters of growth in primary cultures and cell lines established from *Drosophila* imaginal discs 29
BROWAEYS-POLY, E. Extracellular matrix of the regeneration chamber and plasma membranes of the epidermis during leg regeneration in an insect *Carausius morosus* 41
WIGGLESWORTH, V. B. The distribution of aeriferous tracheae for the ovaries of insects 57
SECCA, T., VAGNETTI, D., DOLCINI, B. M. and DI ROSA, I. Cytochemical and biochemical observations on the alveolar guanylate cyclase of golden hamster lung 67
ROWELL, C. H. F. and REICHERT, H. Mesothoracic interneurons involved in flight steering in the locust 75
ALEXANDER, J. S., PATTON, W. F., YOON, M. U. and SHEPRO, D. Cytokeratin filament modulation in pulmonary microvessel endothelial cells by vasoactive agents and culture confluency 141
BING, R. J., BINDER, T., PATARICZA, J., KIBIRA, S. and SHANKAR NARAYAN, K. The use of microcarrier beads in the production of endothelium-derived relaxing factor by freshly harvested endothelial cells 151
MIA, A. J., OAKFORD, L. X., CAMMARATA, P. and YORIO, T. Modulation of cytoskeletal organization and cytosolic granule distribution by verapamil in amphibian urinary epithelia 161
ENWEMEKA, C. S. Membrane-bound intracellular collagen fibrils and myofibroblasts of regenerating rabbit calcaneal tendons 173
BARD, F. and FRANZINI-ARMSTRONG, C. Extra actin filaments at the periphery of skeletal muscle myofibrils 191
MAZZINI M., CARCUPINO, M. and KATHIRITHAMBY, J. Fine structure of the spermatozoon of the strepsipteran *Xenos moutoni* 199
MAGALHAES, M. M., SERRA, T. A. M., PINTO, P. and MAGALHAES, M. C. The effects of monensin on Golgi complex of adrenal cortex and Steriodogenesis 209
MÜLLER, T. Methylene blue filling of the dorsal giant fibres of the earthworm by electrophoresis 217
LACY, E. R., LUCIANO, L. and REALE, E. Membrane specializations in flagellar ribbons of elasmobranch fish 223
YAZAMA, F., SAWADA, H., HIROSAWA, K., HAYASHI, Y. and NISHIDA, T. Deep-etch visualization of the Sertoli cell (blood-testis) barrier in the boar 235
LAI-FOOK, J. Absorption of phosphorus from the spermatophore through the cuticle of the bursa copulatrix of the butterfly, *Calpodes ethlius* 247
VITELLARO-ZUCCARELLO, L., DE BIASI, S., BERNARDI, P. and OGGIONI, A. Distribution of serotonin-, gamma- aminobutyric acid- and substance P-like immunoreactivity in the central and peripheral nervous system of *Mytilus galloprovincialis* 261
ROWELL, C. H. F. The organization of exteroceptive sensory inputs to interneurons of the flight neuropil in locusts 271
PLAZAOLA, A. and CANDELAS, G. C. Stimulation of fibroin synthesis elicits ultrastructural modifications in spider silk secretory cells 277

CONTENTS

TISSUE AND CELL 1991 VOLUME 23 NUMBER 6

SOJI, T., NISHIZONO, H., YASHIRO, T. and HERBERT, D. C. Cytochemistry of Ca^{++}-dependent adenosine triphosphatase (Ca-ATPase) in rat anterior pituitary cells 1
ZANGER, K., DANNHORN, D. R., SEITZ, K. A. and PETERS, W. Nephrocytes of harvestmen, *Leiobunum limbatum* and *L. rotundum* 7
TORROBA, M., BARRUTIA, M. G. and ZAPATA, A. G. Fine structure and histochemistry of the ampullary organ of the urodele amphibian *Pleurodeles* 17
CULLEN, C. F. and MILNER, M. J. Parameters of growth in primary cultures and cell lines established from *Drosophila* imaginal discs 29
BROWAEYS-POLY, E. Extracellular matrix of the regeneration chamber and plasma membranes of the epidermis during leg regeneration in an insect *Carausius morosus* 41
WIGGLESWORTH, V. B. The distribution of aeriferous tracheae for the ovaries of insects 57
SECCA, T., VAGNETTI, D., DOLCINI, B. M. and DI ROSA, I. Cytochemical and biochemical observations on the alveolar guanylate cyclase of golden hamster lung 67
ROWELL, C. H. F. and REICHERT, H. Mesothoracic interneurons involved in flight steering in the locust 75
ALEXANDER, J. S., PATTON, W. F., YOON, M. U. and SHEPRO, D. Cytokeratin filament modulation in pulmonary microvessel endothelial cells by vasoactive agents and culture confluency 141
BING, R. J., BINDER, T., PATARICZA, J., KIBIRA, S. and SHANKAR NARAYAN, K. The use of microcarrier beads in the production of endothelium-derived relaxing factor by freshly harvested endothelial cells 151
MIA, A. J., OAKFORD, L. X., CAMMARATA, P. and YORIO, T. Modulation of cytoskeletal organization and cytosolic granule distribution by verapamil in amphibian urinary epithelia 161
ENWEMEKA, C. S. Membrane-bound intracellular collagen fibrils and myofibroblasts of regenerating rabbit calcaneal tendons 173
BARD, F. and FRANZINI-ARMSTRONG, C. Extra actin filaments at the periphery of skeletal muscle myofibrils 191
MAZZINI M., CARCUPINO, M. and KATHIRITHAMBY, J. Fine structure of the spermatozoon of the strepsipteran *Xenos moutoni* 199
MAGALHAES, M. M., SERRA, T. A. M., PINTO, P. and MAGALHAES, M. C. The effects of monensin on Golgi complex of adrenal cortex and Steriodogenesis 209
MÜLLER, T. Methylene blue filling of the dorsal giant fibres of the earthworm by electrophoresis 217
LACY, E. R., LUCIANO, L. and REALE, E. Membrane specializations in flagellar ribbons of elasmobranch fish 223
YAZAMA, F., SAWADA, H., HIROSAWA, K., HAYASHI, Y. and NISHIDA, T. Deep-etch visualization of the Sertoli cell (blood-testis) barrier in the boar 235
LAI-FOOK, J. Absorption of phosphorus from the spermatophore through the cuticle of the bursa copulatrix of the butterfly, *Calpodes ethlius* 247
VITELLARO-ZUCCARELLO, L., DE BIASI, S., BERNARDI, P. and OGGIONI, A. Distribution of serotonin-, gamma- aminobutyric acid- and substance P-like immunoreactivity in the central and peripheral nervous system of *Mytilus galloprovincialis* 261
ROWELL, C. H. F. The organization of exteroceptive sensory inputs to interneurons of the flight neuropil in locusts 271
PLAZAOLA, A. and CANDELAS, G. C. Stimulation of fibroin synthesis elicits ultrastructural modifications in spider silk secretory cells 277

MEULEMANS, W. and DE LOOF, A. Cytoskeletal F-actin patterns in whole-mounted larval and adult salivary glands of the fleshfly, *Sarcophaga bullata* 285
WREN, H. N. TEM evidence of urocytes in the cockroach fat body 291
PARSONS, D. F., MARKO, M. and LEITH, A. Organelle rearrangement and cell volume changes during squeezing invasion of peritoneal elastic lamina by targeted murine breast carcinoma cells 293
LECHAIRE, J.-P. and DENEFLE, J.-P. Dermal breaks: migratory cell pathways opened in anuran tadpole skin at climactic metamorphosis 307
OTTAVIANI, E. Tissue distribution and levels of natural and induced serum lysozyme immunoreactive molecules in a freshwater snail 317
DITRICH, H. and SPLECHTNA, H. Endothelial nuclear bulging: morphological evidence for an intraglomerular perfusion regulating mechanism in the axolotl *Ambystoma* 325
MILTON, G. W. A., VERHAERT, P. D. E. M. and DOWNER, R. G. H. Immunofluorescent localization of dopamine-like and leucine-enkephalin-like neurons in the supraoesophageal ganglia of the American cockroach, *Periplaneta americana* 331
GASCUEL, J. and MASSON, C. A quantitative ultrastructural study of the honeybee antennal lobe 341
GOMEZ, B. J., ANGULO, E. and ZUBIAGA, A. M. Ultrastructural analysis of the morphology and function of the spermatheca of the pulmonate slug *Arion subfuscus* 357
LOCKE, MICHAEL. Apoferritin in the vacuolar system of insect hemocytes 367
OEHMEN, F., AUMÜLLER, G., BERGMANN, M. and SEITZ, J. Distribution of sulfhydryloxidase (SOx) immunoreactivity in the testis of the axolotl (*Ambystoma mexicanum*) (Amphibia, Urodela) 377
IWASAKI, S and WANICHANON, C. Fine structure of the dorsal lingual epithelium of the frog, *Rana rugosa* 385
ELLIS, L. C. and YOUSON, J. H. Ultrastructure of the pronephric kidney of embryos and prolarvae of the sea lamprey, *Petromyzon marinus* 393
BALDWIN, K. M. and HAKIM, R. S. Growth and differentiation of the larval midgut epithelium during molting in the moth, *Manduca sexta* 411
JUBERTHIE-JUPEAU, L. and LOPEZ, A. Sexual dimorphism of gnathocoxal glands of the spider *Leptyphantes sanctivincentii* 423
MOLLER, P. C., BERGMANN, J. S., EVANS, M. J., WEAVER, B. W., GIVEN, R. L. and BLANKENSHIP, T. N. Immunocytochemical localization of laminin in hamster tracheal epithelial cell cultures 427
GU, J., PINHEIRO, J. M. B., YU, C.-Z., D'ANDREA, M., MURALIDHARAN, S. and MALIK, A. Detection of endothelin-like immunoreactivity in epithelium and fibroblasts of the human umbilical cord 437
MENON, G. K., HOU, E. S. Y. and ELIAS, P. M. Avian permeability barrier function reflects mode of sequestration and organization of stratum corneum lipids: reevaluation utilizing ruthenium tetroxide staining and lipase cytochemistry 445
ROSENDAAL, M., GREGAN, A. and GREEN, C. R. Direct cell-cell communication in the blood-forming system 457
TALLURI, M. VEGNI and DALLAI, R. Evidence for intercellular cohesion in the septate junction of the protozoon *Gregarina* 471
MATSUNO, A. and KAWAMURA, Y. Cell types differing in thick myofilament diameter in obliquely striated muscle of a polychaete annelid, *Neanthes* 481
GAULDIE, R. W., WEST, I. F. and COOTE, G. Seasonal and environmental codes in the chemistry of the scales of the hoki *Macruronus novaezelandiae* 489
MORALES, A. and CAVICCHIA, J. C. Release of cytoplasmic apical protrusions from the principal cells of the cat epididymis, an electron microscopic study 505
LUTHMAN, J., FERNÁNDEZ, A., RADMILOVICH, M. and TRUJILLO-CENÓZ, O. Immunohistochemical studies on the spinal dorsal horn of the turtle *Chrysemys d'orbigny* 515
MENZEL, J. G., WUNDERER, H. and STAVENGA, D. G. Functional morphology of the divided compound eye of the honeybee drone (*Apis mellifera*) 525

FERRAGUTI, M., BONDI, M. and LANZAVECCHIA, S. Ultrastructural analysis of sperm flagella in two clitellates (Annelida), plasma membrane and periaxonemal area 537
GASCUEL, J., MASSON, C. and BEADLE, D. J. The morphology and ultrastructure of antennal lobe cells from pupal honeybees (*Apis mellifera*) growing in culture 547
KUBRAKIEWICZ, J. Egg envelopes in diplopods, a comparative ultrastructural study 561
PAPASSIDERI, I., MARGARITIS, L. H. and GULIK-KRZYWICKI, T. The egg-shell of *Drosophila melanogaster* VI, structural analysis of the wax layer in laid eggs 567
RAIKHEL, A. S. and LEA, A. O. Control of follicular epithelium development and vitelline envelope formation in the mosquito; role of juvenile hormone and 20-hydroxyecdysone 577
QUANTOCK, A. J., MEEK, K. M., BRITTAIN, P., RIDGEWAY A. A. E. and THONAR, E. J.-M. A. Alteration of the stromal architecture and depletion of keratan sulphate proteoglycans in oedematous human corneas: histological, immunochemical and X-ray diffraction evidence. 593
VERGANI, G., MAYERHOFER, A. and BARTKE, A. Acute effects of human growth hormone on liver cells *in vitro*: a comparison with livers of mice transgenic for human growth hormone 607
GHOSH, S., SINHA-HIKIM, A. P. and RUSSELL, L. D. Further observations of stage-specific effects seen after short-term hypophysectomy in the rat 613
EGAR, M. W. and JARIAL, M. S. Structural changes in the proximal tubule of the short-toes axolotl mutant 631
HUNTER, R. H. F., FLÉCHON, B. and FLÉCHON, J. E. Distribution, morphology and epithelial interactions of bovine spermatozoa in the oviduct before and after ovulation: a scanning electron microscope study 641
ZAWADOWSKA, B. Eye muscles of the pike (*Esox lucius*): fiber types and their actomyosin ATPase and SDH activity 657
AMEN, R. I., BAGGEN, J. M. C., MEULEMAN, E. A., WIJSMAN-GROOTENDORST, A., BOON, M. E., BEZEMER, P. D. and SMINIA, T. *Trichobilharzia ocellata*: quantification of effects on haemocytes of the pond snail *Lymnaea stagnalis* by morphometric means 665
GAULDIE, R. W., COOTE, G., WEST, I. F. and MULLIGAN, K. P. The morphology and chemistry of the scales of the orange roughy and the smooth and spiky oreo dories 677
RYERSE, J. S. Gap junction protein tissue distribution and abundance in the adult brain in *Drosophila* 709
FADOOL, D. A., MICHEL, W. C. and ACHE, B. W. Sustained primary culture of lobster (*Panulirus argus*) olfactory receptor neurons 719
BRUNET, M., CUOC, C., ARNAUD, J. and MAZZA, J. Tegumental glands in a copepod *Hemidiaptomus ingens*: structural, ultrastructural and cytochemical aspects 733
MOUZAKI, D. G. and MARGARITIS, L. H. The eggshell of the cherry fly *Rhagoletis cerasi* 745
DE COCK, A. and DEGHEELE, D. Effects of buprofezin on the ultrastructure of the third instar cuticle of the insect *Trialeurodes vaporariorum* 755
SIT, K. H., BAY, B. H. and WONG, K. P. Antiport mediated rounding and endocytosis are enhanced by sulphate 763
COWAN, B. J., FOTY, R. A. and LIVERSAGE, R. A. Insulin, glucagon and somatostatin localization in the pancreas of metamorphosed *Xenopus laevis* 777
CITI, S. and KENDRICK-JONES, J. Localization of myosin in the cytoskeleton of brush border cells using monoclonal antibodies and confocal laser-beam scanning microscopy 789
CIFUENTES-DIAZ, C., ROUCHE, A. and AUBER, J. Development of muscle fibre nuclei in holometabolous insect larvae 801
FIEDLER, A. and SCHIPP, R. Localization of catecholamine-containing nerve fibres in the branchial heart and cardiac ganglion of the common cuttlefish *Sepia officinalis* (Cephalopoda) 813

KEIL, T. A. and STEINER, C. Morphogenesis of the antenna of the male silkmoth, *Antheraea polyphemus*, III. Development of olfactory sensilla and the properties of hair-forming cells 821
GUTZEIT, H. O. and HAAS-ASSENBAUM, A. The somatic envelopes around the germline cells of polytrophic insect follicles: structural and functional aspects 853
HENDERSON, S. C. and LOCKE, M. The development of branched silk gland nuclei 867
VAN DE VELDE, M. C., COOMANS, A., VAN RANST, L., KRUGER DE W, J. C. and CLAEYS, M. Ultrastructure of sperm cells in the female gonoduct of *Xiphinema* 881
FRANCHINI, A., BARBANTI, E. and BOLOGNANI FANTIN, A.-M. Effects of lead on hepatocyte ultrastructure in *Carassius carassius* var. *auratus* 893
KUBRAKIEWICZ, J., ADAMSKI, R. T. and BILINSKI, S. M. Ultrastructural studies on accessory nuclei in developing oocytes of the crustacean. *Siphonophanes grubei* 903
GILLES, R. and GOFFINET, G. Effects of osmotic shock on the ultrastructure of cell nuclei in euryhaline and stenohaline crustaceans 909
ENGELHARD, E. K., KEDDIE, B. A. and VOLKMAN, L. E. Isolation of third, fourth, and fifth instar larval midgut epithelia of the moth, *Trichoplusia ni* 917
SAOUTER, E., LE MENN, R., BOUDOU, A. and RIBEYRE, F. Structural and ultrastructural analysis of gills and gut of *Hexagenia rigida* nymphs (Ephemeroptera) in relation to contamination mechanisms 929
LUCHTEL, D. L., MARTIN, A. W. and DEYRUP-OLSEN, I. Ultrastructure and permeability characteristics of the membranes of mucous granules of the hagfish 939

INDEX OF AUTHORS 949

INDEX OF SUBJECTS 955